

**CLAIMS:**

1. A method for removing mercury vapors from waste gas comprising contacting said waste gas with a scrubbing agent comprising organic sulfoxides.
2. A method according to claim 1, wherein the scrubbing agent is  
5 essentially pure organic sulfoxides.
3. A method according to claim 1, wherein the scrubbing agent is an emulsion of water-in-organic sulfoxides.
4. A method according to claim 1 wherein the waste gas is a combustion flue gas.
- 10 5. A method according to claim 1 wherein the waste gas is a gas mixture released from a chemical process.
6. A method according to claim 1 wherein a stream of air or of ozonated air is added to the stream of waste gas.
7. A method according to claim 1 wherein the organic sulfoxides are oil  
15 derived sulfoxides.
8. A method according to claim 6 wherein the oil derived sulfoxides are derived from the diesel fraction of oil.
9. A method according to claim 3 wherein the weight ratio of water: organic sulfoxide in the emulsion is in the range 10:90 to 90: 10.
- 20 10. A method according to claim 9 wherein the weight ratio of water: organic sulfoxide in the emulsion is in the range 10:90 to 50:50.
11. A method according to claim 9 wherein the weight ratio of water: organic sulfoxide in the emulsion is in the range 30:70 w/w/.

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12. A method according to claim 3 wherein the scrubbing agent is regenerated after it is loaded, by letting said scrubbing agent to separate into two phases, collecting the upper sulfoxide phase and adding to said sulfoxide phase a fresh amount of aqueous solution.
- 5 13. A method according to claim 1 wherein contacting the waste gas with said scrubbing agent is conducted in a tower embedded with inert particles and wherein the waste gas is passed upward through the tower and the scrubbing agent is circulated downward in a rate which ensures complete wetting of inert particles.
- 10 14. A method according to claim 1 wherein contacting the waste gas with said scrubbing agent is conducted in a tower through which the waste gas is passed in an upward direction and the scrubbing agent is sprayed into the tower from the upper opening of the tower forming a fog of said scrubbing agent the tower.